



FEDERAL COMMUNICATIONS COMMISSION

47 CFR Parts 2, 15, 25, 27, and 101

[WT Docket No. 20-443; FCC 23-36; FR ID 148306]

Expanding Flexible Use of the 12.2-12.7 GHz Band

AGENCY: Federal Communications Commission.

ACTION: Proposed rule.

SUMMARY: In this document, the Federal Communications Commission (Commission) seeks further comment on how it could facilitate more robust terrestrial operations in the 12.2-12.7 GHz (12.2 GHz) band through additional possible terrestrial uses of the band including one-way, point-to-point or point-to-multipoint fixed links at higher powers than current Multichannel Video Distribution and Data Service (MVDDS) rules permit; two-way, point-to-point fixed links at standard part 101 power limits; two-way, point-to-multipoint links; indoor only underlay on a licensed by rule basis; unlicensed use; and expanded use through technology-based sharing using Automated Frequency Coordination. In their responses to these inquiries, the Commission strongly encourages commenters to provide specific proposals and detailed technical data to support their proposals.

DATES: Comments are due on or before [INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]; reply comments on or before [INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

Written comments on the Paperwork Reduction Act proposed information collection requirements must be submitted by the public, Office of Management and Budget (OMB), and other interested parties on or before [INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

Written comments on the Initial Regulatory Flexibility Analysis (IRFA) of this document must have a separate and distinct heading designating them as responses to the IRFA and must be

submitted by the public on or before **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**.

ADDRESSES: Pursuant to §§ 1.415 and 1.419 of the Commission's rules, 47 CFR 1.415, 1.419, interested parties may file comments and reply comments on or before the dates indicated on the first page of this document. Comments may be filed using the Commission's Electronic Comment Filing System (ECFS). See Electronic Filing of Documents in Rulemaking Proceedings, 63 FR 24121 (1998). You may submit comments identified by WT Docket No. 20-443 by any of the following methods:

- *Electronic Filers:* Comments may be filed electronically using the internet by accessing the ECFS: <http://apps.fcc.gov/ecfs/>.
- *Paper Filers:*
 - Parties who choose to file by paper must file an original and one copy of each filing.
 - Filings can be sent by commercial overnight courier, or by first-class or overnight U.S. Postal Service mail. All filings must be addressed to the Commission's Secretary, Office of the Secretary, Federal Communications Commission.
 - Commercial overnight mail (other than U.S. Postal Service Express Mail and Priority Mail) must be sent to 9050 Junction Drive, Annapolis Junction, MD 20701.
 - U.S. Postal Service first-class, Express, and Priority mail must be addressed to 45 L Street NE, Washington, D.C. 20554.
- Effective March 19, 2020, and until further notice, the Commission no longer accepts any hand or messenger delivered filings. This is a temporary measure taken to help protect the health and safety of individuals, and to mitigate the transmission of COVID-19. See *FCC Announces Closure of FCC Headquarters Open Window and Change in Hand-Delivery Policy*, Public Notice, DA 20-304 (March 19, 2020).

<https://www.fcc.gov/document/fcc-closes-headquarters-open-window-and-changes-hand-delivery-policy>.

People with Disabilities: To request materials in accessible formats (braille, large print, computer diskettes, or audio recordings), please send an email to FCC504@fcc.gov or call the Consumer & Government Affairs Bureau at (202) 418-0530 (VOICE), (202) 418-0432 (TTY).

FOR FURTHER INFORMATION CONTACT: Madelaine Maior of the Wireless Telecommunications Bureau, Broadband Division, at madelaine.maior@fcc.gov or 202-418-1466; Simon Banyai of the Wireless Telecommunications Bureau, at simon.banyai@fcc.gov or (202) 418-1443; or Nick Oros of the Office of Engineering and Technology, at nicholas.oros@fcc.gov or (202) 418-2099. For additional information concerning the Paperwork Reduction Act proposed information requirements contained in this document, send an e-mail to PRA@fcc.gov or contact Kathy Williams at (202) 418-2918.

SUPPLEMENTARY INFORMATION: This is a summary of the Commission's Further Notice of Proposed Rulemaking (FNPRM) in WT Docket No. 20-443 included in the Report and Order and Further Notice of Proposed Rulemaking and Notice of Proposed Rulemaking and Order, FCC 23-36, adopted on May 18, 2023 and released on May 19, 2023. The full text of this document is available at <https://docs.fcc.gov/public/attachments/FCC-23-36A1.pdf>. The Report and Order and the FNPRM (WT Docket No. 20-443), and the Notice of Proposed Rulemaking and the Order (GN Docket No. 22-352), i.e., the four FCC actions in FCC 23-36, are published separately in the Rules and Regulations and the Proposed Rules sections, as applicable, in this issue of the *Federal Register*.

Regulatory Flexibility Act: The Regulatory Flexibility Act of 1980, as amended (RFA), requires that an agency prepare a regulatory flexibility analysis for notice-and-comment rulemakings, unless the agency certifies that "the rule will not, if promulgated, have a significant economic impact on a substantial number of small entities." The Commission seeks comment on potential rule and policy changes contained in the FNPRM, and accordingly, has prepared an

Initial Regulatory Flexibility Analysis (IRFA). The IRFA for the FNPRM in WT Docket 20-443 is set forth below in this document, and written public comments are requested. Comments must be filed by the deadlines for comments on the FNPRM indicated under the **DATES** section of this document and must have a separate and distinct heading designating them as responses to the IRFA. The Commission reminds commenters to file in the appropriate docket: WT Docket No. 20-443 is for the FNPRM.

Paperwork Reduction Act: This document may contain proposed modified information collection requirements. Therefore, the Commission seeks comment on potential new or revised information collections subject to the Paperwork Reduction Act of 1995. If the Commission adopts any new or revised information collection requirements, the Commission will publish a document in the *Federal Register* inviting the general public and the Office of Management and Budget to comment on the information collection requirements, as required by the Paperwork Reduction Act of 1995, Public Law 104-13. In addition, pursuant to the Small Business Paperwork Relief Act of 2002, Public Law 107-198, see 44 U.S.C. 3506(c)(4)), the Commission seeks specific comments on how it might further reduce the information collection burden for small business concerns with fewer than 25 employees.

Ex Parte Rules: This proceeding shall be treated as a “permit-but-disclose” proceeding in accordance with the Commission’s ex parte rules. Persons making ex parte presentations must file a copy of any written presentation or a memorandum summarizing any oral presentation within two business days after the presentation (unless a different deadline applicable to the Sunshine period applies). Persons making oral ex parte presentations are reminded that memoranda summarizing the presentation must (1) list all persons attending or otherwise participating in the meeting at which the ex parte presentation was made, and (2) summarize all data presented and arguments made during the presentation. If the presentation consisted in whole or in part of the presentation of data or arguments already reflected in the presenter’s written comments, memoranda, or other filings in the proceeding, the presenter may provide

citations to such data or arguments in his or her prior comments, memoranda, or other filings (specifying the relevant page and/or paragraph numbers where such data or arguments can be found) in lieu of summarizing them in the memorandum. In proceedings governed by § 1.49(f) or for which the Commission has made available a method of electronic filing, written ex parte presentations and memoranda summarizing oral ex parte presentations, and all attachments thereto, must be filed through the electronic comment filing system available for that proceeding, and must be filed in their native format (e.g., .doc, .xml, .ppt, searchable .pdf). Documents shown or given to Commission staff during ex parte meetings are deemed to be written ex parte presentations and must be filed consistent with § 1.1206(b). Participants in this proceeding should familiarize themselves with the Commission's ex parte rules.

Synopsis

I. FURTHER NOTICE OF PROPOSED RULEMAKING¹

A. Background

1. 12.2-12.7 GHz Band—500 megahertz

1. The 12.2-12.7 GHz band (12.2 GHz band) band is allocated on a primary basis for non-Federal use for Broadcasting Satellite Service (BSS) (referred to domestically as Direct Broadcast Satellite (DBS)), Fixed Satellite Service (FSS) (space-to-Earth) limited to non-geostationary orbit systems (NGSO FSS), and Fixed Service.² While the three services are co-primary, NGSO FSS and Fixed

¹ Record references and citations refer to WT Docket No. 20-443, unless otherwise noted.

² See 47 CFR 2.106, United States Table of Frequency Allocations, non-Federal Table for the band 12.2-12.7 GHz. NGSO FSS (space-to-Earth) operations are authorized pursuant to international footnote 5.487A (revised as 47 CFR 2.106(b)(487)(i), at 88 FR 37318, June 7, 2023, effective July 7, 2023), which provides additional allocations including in Region 2 as follows: “[The 12.2-12.7 GHz is] allocated to the fixed-satellite service (space-to-Earth) on a primary basis, limited to non-geostationary systems and subject to application of the provisions of [International Telecommunication Union (ITU) Radio Regulations] No. 9.12 for coordination with other non-geostationary-satellite systems in the fixed-satellite service. Non-geostationary-satellite systems in the fixed-satellite service shall not claim protection from geostationary-satellite networks in the broadcasting-satellite service operating in accordance with the Radio Regulations, irrespective of the dates of receipt by the [ITU Radiocommunication] Bureau of the complete coordination or notification information, as appropriate, for the non-geostationary-satellite systems in the fixed-satellite service and of the complete coordination or notification information, as appropriate, for the geostationary-satellite networks, and [ITU Radio Regulations] No. 5.43A does not apply. Non-geostationary-satellite systems in the fixed-satellite service in the [12 GHz band] shall be operated in such a way that any unacceptable interference that may occur during their operation shall be rapidly eliminated.”

Service are allocated on a non-harmful interference basis to DBS.³ Currently there are three services operating in the band: DBS providers operating under the primary BSS allocation, NGSO FSS licensees operating under the co-primary NGSO FSS allocation, and Multi-Channel Video and Data Distribution Service (MVDDS) licensees operating under the co-primary Fixed Service allocation.⁴

2. While DBS service began in 1994, and NGSO FSS systems were authorized in the early 2000s, the Commission permitted MVDDS to operate in the 12.2 GHz band starting in 2004 under technical rules to ensure that MVDDS stations do not cause harmful interference to DBS or earlier-in-time NGSO FSS fixed subscriber receivers.⁵ To that end, MVDDS service was limited to a relatively low power, one-way, digital fixed non-broadcast service, including one-way direct-to-home/office wireless service with each proposed transmitter subject to detailed prior coordination requirements.⁶ In April 2016, a coalition of MVDDS licensees filed a Petition for Rulemaking requesting reforms to the 12.2 GHz band rules, including permitting MVDDS licensees to use the band for two-way mobile broadband services.⁷

47 CFR 2.106, n.5.487A (revised as 47 CFR 2.106(b)(487)(i), at 88 FR 37318, June 7, 2023, effective July 7, 2023). When an international footnote is applicable without modification to non-Federal operations, the Commission places the footnote on the non-Federal Table. See 47 CFR 2.105(d)(5).

³ See 47 CFR 2.106, n.5.490 (International Footnote) (revised as 47 CFR 2.106(b)(490), at 88 FR 37318, June 7, 2023, effective July 7, 2023). In Region 2, in the 12.2-12.7 GHz band, existing and future terrestrial radiocommunication services shall not cause harmful interference to the space services operating in conformity with the broadcasting satellite Plan for Region 2 contained in Appendix 30. “Harmful Interference” is defined under the Commission’s rules as “[i]nterference which endangers the functioning of a radionavigation service or of other safety services or seriously degrades, obstructs, or repeatedly interrupts a radiocommunication service operating in accordance with the ITU Radio Regulations.” 47 CFR 2.1(c). See also Annex to the Constitution of the ITU, 1003 (defining harmful interference).

⁴ 47 CFR 101.147(a) n.31.

⁵ See *Amendment of Parts 2 and 25 of the Commission’s Rules to Permit Operation of NGSO FSS Systems Co-Frequency with GSO and Terrestrial Systems in the Ku-Band Frequency Range, Amendment of the Commission’s Rules to Authorize Subsidiary Terrestrial Use of the 12.2-12.7 GHz Band by Direct Broadcast Satellite Licensees and Their Affiliates; and Applications of Broadwave USA, PDC Broadband Corporation, and Satellite Receivers, Ltd. to Provide A Fixed Service in the 12.2-12.7 GHz Band*, ET Docket No. 98-206, First Report and Order and Further Notice of Proposed Rule Making, 16 FCC Rcd 4096, 4177, para. 213 (2000) (*First Report and Order and FNPRM*).

⁶ See 47 CFR 101.1407 (two-way services can be provided using spectrum in other bands for the return link). See also *Amendment of Parts 2 and 25 of the Commission’s Rules to Permit Operation of NGSO FSS Systems Co-Frequency with GSO and Terrestrial Systems in the Ku-Band Frequency Range*, Memorandum Opinion and Order and Second Report and Order, 17 FCC Rcd 9614 (2002) (*MVDDS Second Report and Order*) (*aff’d Northpoint Technology, LTD et al. v. FCC*, 414 F.3d 61 (D.C. Cir. 2005)).

⁷ Petition of MVDDS 5G Coalition Petition for Rulemaking, RM-11768, at 17-18 (filed Apr. 26, 2016), <https://www.fcc.gov/ecfs/document/60001658886/1> (MVDDS 5G Coalition Petition). See also *Petition for Rulemakings Filed*, Public Notice, Report No. 3042, at 8, 17-18 (May 9, 2016) (Petition Public Notice).

3. Later in 2016, the International Bureau opened a processing round to accept NGSO FSS applications and petitions for market access in several frequency bands⁸ and the Commission reformed its NGSO FSS rules.⁹ In 2017, the Commission granted the first of the new generation NGSO FSS requests—a petition for market access by WorldVu Satellites Limited (OneWeb) for a planned Low Earth Orbit (LEO) NGSO FSS satellite system of 720 satellites authorized by the United Kingdom in the 10.7-12.7 GHz Band (in addition to several other bands).¹⁰ The Commission concluded that “the pendency of the MVDDS 5G Coalition’s Petition for Rulemaking was not a sufficient reason to delay or deny these requests to use the band under the existing NGSO FSS allocation and service rules.”¹¹ In granting this request, however, the Commission conditioned access to the 12 GHz band on the outcome of the MVDDS 5G Coalition’s Petition and any other rulemaking initiated on the Commission’s own motion.¹² The Commission also agreed with comments of the MVDDS 5G Coalition that MVDDS should not have to protect any NGSO FSS earth stations in motion operations in the band, if authorized in the future, because such operations had not been contemplated under the longstanding first-in-time MVDDS/NGSO FSS sharing approach.¹³ The NGSO FSS Report and Order adopted, among other things, spectrum sharing rules and a more flexible milestone

⁸ See *Satellite Policy Branch Information; OneWeb Petition Accepted for Filing (IBFS File No. SAT-LOI-20160428-00041), Cut-Off Established for Additional NGSO-Like Satellite Applications or Petitions for Operations in the 10.7-12.7 GHz, 14.0-14.5 GHz, 17.8-18.6 GHz, 18.8-19.3 GHz, 27.5-28.35 GHz, 28.35-29.1 GHz, and 29.5-30.0 GHz Bands*, Public Notice, 31 FCC Rcd 7666 (IB July 15, 2016).

⁹ In September 2017, the Commission adopted the *NGSO FSS Report and Order*, updating several rules and policies governing NGSO FSS systems. See *Update to Parts 2 and 25 Concerning Non-Geostationary, Fixed-Satellite Service Systems and Related Matters*, Report and Order (82 FR 59972 (Dec. 18, 2017)) and Further Notice of Proposed Rulemaking (82 FR 52869 (Nov. 15, 2017)), 32 FCC Rcd 7809 (2017) (*NGSO FSS Report and Order*).

¹⁰ See *WorldVu Satellites Limited, Petition for Declaratory Ruling Granting Access to the U.S. Market for the OneWeb NGSO FSS System*, Order and Declaratory Ruling, 32 FCC Rcd 5366 (2017) (*OneWeb Order*).

¹¹ *Id.* at 5369, para. 6.

¹² *Id.* at 5378, para. 26 (“This grant of U.S. market access and any earth station licenses granted in the future are subject to modification to bring them into conformance with any rules or policies adopted by the Commission in the future.”). See also *id.* at 5369, para. 6 (“Accordingly, any investment made toward operations in this band by OneWeb in the United States assume the risk that operations may be subject to additional conditions or requirements as a result of such Commission actions.”).

¹³ *Id.* at 5370, para. 8.

schedule for NGSO FSS systems.¹⁴ The Commission subsequently granted five additional NGSO FSS requests to use bands that include the 12.2 GHz band (among others).¹⁵

4. NGSO FSS systems have continued to deploy. In particular, SpaceX received modified authority for its first generation (Gen 1) system to decrease the altitude from the 1,100-1,300 km to the 540-570 km range for 2,814 satellites as well as approval of its updated orbital debris mitigation plan.¹⁶ To date, SpaceX has deployed approximately 4,000 satellites.¹⁷ We also recently issued a partial grant to SpaceX to begin deploying its second generation (Gen 2) system, with a grant approving up to 7,500 satellites to operate in the Ka- and Ku-frequency bands.¹⁸ OneWeb also recently received modified authority for its constellation¹⁹ and, to date, it has deployed over 580 satellites.²⁰ On June 30, 2022, the International Bureau authorized

¹⁴ See *NGSO FSS Report and Order*, 32 FCC Rcd at 7821-31, paras. 37-68.

¹⁵ *Space Norway AS, Petition for a Declaratory Ruling Granting Access to the U.S. Market for the Arctic Satellite Broadband Mission*, Order and Declaratory Ruling, 32 FCC Rcd 9649 (2018) (*Space Norway Order*); *Karousel Satellite LLC, Application for Authority to Launch and Operate a Non-Geostationary Earth Orbit Satellite System in the Fixed Satellite Service*, Memorandum Opinion, Order and Authorization, 33 FCC Rcd 8485 (2018) (*Karousel Order*); *Space Exploration Holdings, LLC Application For Approval for Orbital Deployment and Operating Authority for the SpaceX NGSO Satellite System*, Memorandum Opinion Order and Authorization, 33 FCC Rcd 3391 (2018) (*SpaceX Order*); *Kepler Communications Inc. Petition for Declaratory Ruling to Grant Access to the U.S. Market for Kepler's NGSO FSS System*, Order, 33 FCC Rcd 11453, (2018) (*Kepler Order*); *Theia Holdings A, Inc. Request for Authority to Launch and Operate a Non-Geostationary Satellite Orbit System in the Fixed-Satellite Service, Mobile-Satellite Service, and Earth-Exploration Satellite Service*, Memorandum, Opinion and Authorization, 34 FCC Rcd 3526 (2019) (*Theia Order*).

¹⁶ *Space Exploration Holdings, LLC, Request for Modification of the Authorization for the SpaceX NGSO Satellite System*, Order and Authorization, 36 FCC Rcd 7995 (2021).

¹⁷ See, e.g., Mike Wall, SpaceX launches 56 Starlink satellites, lands rocket at sea, space.com (“SpaceX has now lofted more than 4,200 Starlink satellites overall, according to astrophysicist and satellite tracker Jonathan McDowell.”) (Mar. 29, 2023), [https://www.space.com/spacex-starlink-group-5-10-launch#:~:text=SpaceX%20launched%20another%20big%20batch,p.m.%20EDT%20\(2001%20GMT\)](https://www.space.com/spacex-starlink-group-5-10-launch#:~:text=SpaceX%20launched%20another%20big%20batch,p.m.%20EDT%20(2001%20GMT).).

¹⁸ *Space Exploration Holdings, LLC, Request for Orbital Deployment and Operating Authority for the SpaceX Gen2 NGSO Satellite System*, IBFS File No. SAT-LOA-20200526-00055 and SAT-AMD-20210818-00105, Order and Authorization, FCC 22-91, 2022 WL 17413767, at *54, para. 135(ii) (Dec. 1, 2022) (*SpaceX Gen2 Order*) (stating that the “authorization is subject to modification to bring it into conformance with any rules or policies adopted by the Commission in the future. [And, that]...any investments made toward operations in the bands authorized [by the] Order by SpaceX in the United States assume the risk that operations may be subject to additional conditions or requirements as a result of any future Commission actions...[including, but not limited to]...any conditions or requirements resulting from any action in the proceedings associated with...WTB Docket 20-443...”).

¹⁹ *WorldVu Satellites Limited, Petition for Declaratory Ruling to Modify the U.S. Market Access Grant for the OneWeb Ku-band and Ka-Band NGSO FSS System*, Order and Declaratory Ruling, DA 22-970 (IB, rel. Sept. 16, 2022) (petition to modify grant of U.S. market access granted in part and deferred in part to approve minor adjustments to number of satellites per plane without exceeding previously-approved total of 720 satellites).

²⁰ See, e.g., Letter from Kimberly M. Baum, Vice President, Spectrum Engineering & Strategy, WorldVu Satellites Limited, to Marlene H. Dortch, Secretary, FCC, WT Docket Nos. 20-443 *et al.* at 1 (filed Mar. 20, 2023); <https://oneweb.net/resources/oneweb-confirms-successful-deployment-40-satellites-launched-spacex-1> (“OneWeb

SpaceX and Kepler to serve earth stations in motion (ESIMs) in the 12.2 GHz band on an unprotected, non-harmful interference basis.²¹

5. On January 15, 2021, the Commission released a notice of proposed rulemaking (*12.2 NPRM*) (86 FR 13266 (March 8, 2021)) to allow interested parties to address whether it could add a mobile allocation and make other changes to expand terrestrial use of the 12.2 GHz band without causing harmful interference to incumbent licensees and, if so, whether such action would promote or hinder the delivery of next-generation services in the 12.2 GHz band given the existing and emergent services offered by incumbent licensees.²²

6. In the Report and Order in WT Docket No. 20-443 (FR 2023-13503), published elsewhere in this issue of the *Federal Register*, the Commission declines to add a mobile allocation or adopt service rules for expanded terrestrial, high-powered, two-way mobile operations in the 12.2-12.7 GHz band. However, the Commission remains interested in potential expanded terrestrial use of the band. Although the *12.2 NPRM* focused on 5G service coexistence with the incumbents in the band, the Commission also asked how it could facilitate

confirms successful deployment of 40 satellites launched with SpaceX. Launch 17 brings the total OneWeb constellation to 582 satellites. Third launch with SpaceX makes penultimate mission to achieving global coverage.”).

²¹ *SpaceX Services, Inc. Application for Blanket Authorization of Next- Generation Ku-Band Earth Stations in Motion et al.; Kepler Communications Inc. Application for Blanket Authorization of Ku-Band Earth Stations on Vessels*, Order and Authorization, DA 22-695 (IB June 30, 2022) (*ESIMs Authorizations*). DISH and RS Access had argued that granting these applications would constrain the Commission’s decision-making in the instant 12.2 GHz band rulemaking proceeding by injecting new ESIM encumbrances into the 12.2 GHz band. *ESIMs Authorizations* at 11-12, para. 22. DISH and RS Access also argued that authorizing ESIMs in the band on an unprotected basis would likely result in primary users in the band being required to assume the costs to prevent service interruptions to SpaceX customers. *Id.* at 11, para. 18. The International Bureau found that granting the applications served the public interest but also recognized that the introduction of a potentially significant number of additional end users in motion could affect the 12 GHz spectrum environment. Therefore the Bureau imposed conditions to ensure grant of those applications would not materially impact the outcome of the 12 GHz rulemaking proceeding. *ESIMs Authorizations* at 12-13, paras. 23-27. The Bureau imposed conditions on the grants related to the 12.2 GHz band including: (1) requiring operations to be on a non-interference basis; (2) subjecting the operations to the outcome of any future rulemaking including the instant 12.2 GHz band proceeding, with the understanding that the presence of ESIMs is not anticipated to materially affect the analysis therein, and subject to modification to conform to any rules or policies adopted, including in the instant 12.2 GHz band proceeding, and assumption of this risk; (3) subjecting the grant to the applicants’ representations, including that their NGSO systems have been engineered to achieve a high degree of flexibility to facilitate spectrum sharing with other authorized satellite and terrestrial systems. *Id.* In addition, the Bureau explained that its case-by-case analysis was limited to the applications before it and have no broader applicability. *See id.*

²² *See Expanding Flexible Use of the 12.2-12.7 GHz Band*, WT Docket Nos. 20-443 et al., Notice of Proposed Rulemaking, 36 FCC Rcd 606 (2021) (*12.2 NPRM*).

more robust terrestrial operations if it chose to maintain the existing regulatory framework, rather than permitting 5G in the band.²³ Based on comments in response to this question, below the Commission seeks further comment on several potential approaches the Commission could take to facilitate such robust use. In their responses to these inquiries, the Commission strongly encourages commenters to provide specific proposals and detailed technical data to support their proposals. The Commission notes that several commenters suggest providing priority access to spectrum over Tribal lands to Tribal entities.²⁴ For each of the possible scenarios below that could involve assigning new, initial licenses, the Commission seeks comment on such a suggestion.

B. Expanded Licensed and Unlicensed Fixed Terrestrial Use of the 12.2-12.7 GHz Band

7. Expanded Licensed Use. The Commission seeks comment on the potential to expand terrestrial fixed use of the 12.2 GHz band. For example, should the Commission consider permitting one-way, point-to-point or point-to-multipoint fixed links at a higher power than the current MVDDS rules allow? The Commission seeks comment on the following issues related to an updated one-way point-to-point or point-to-multipoint fixed link service. Is sharing between point-to-point or point-to-multipoint fixed links possible with NGSO systems whose receivers, unlike those in the DBS service, are not pointed exclusively at the geostationary

²³ See *Expanding Flexible Use of the 12.2-12.7 GHz Band, et al.*, WT Docket No. 20-443, *Notice of Proposed Rulemaking*, FCC 21-13, 36 FCC Rcd 606, 629 Para. 60 (Jan. 15, 2021) (12.2 NPRM).

²⁴ See Letter from Joe Valandra, President & CEO, Tribal Ready, to Marlene H. Dortch, Secretary, FCC, GN Docket No. 22-352 *et al.* (filed May 10, 2023) (Tribal Ready May 10, 2023 *Ex Parte*) (“Tribal Ready respectfully requests that the 12 GHz band FNPRM, as well as any final rules for the band, provide for a set aside for Tribal entities to accelerate [fixed wireless broadband] on Tribal lands. The Commission has previously recognized the value of Tribal set asides in promoting deployment as recently as the 2.5 GHz band. The 12 GHz band can and should also be an option to help Native Americans close the digital divide.”). See also Letter from Michael Calabrese, Director, Wireless Future Program, New America’s Open Technology Institute, and Harold Feld, Senior Vice President, Public Knowledge, to Marlene H. Dortch, Secretary, FCC, GN Docket No. 22-352 *et al.* at 3 (filed May 10, 2023) (Open Technology Institute and Public Knowledge May 10, 2023 *Ex Parte*) (“our groups suggested that the Commission explicitly notice the possibility of opening a rural Tribal window in both the FNPRM and the NPRM. The Commission should ask whether to permit point-to-point or point-to-multipoint operations on tribal lands in 12.2 GHz on terms similar to those authorized to MVDDS licensees. This would require modification of the existing MVDDS licenses, but such modification would be a reasonable tradeoff for the expanded spectrum rights provided to the MVDDS licensees.”).

satellite arc?²⁵ What power limit would be appropriate to allow for better expanded terrestrial use of this band while still protecting incumbent licensees? Should such expanded terrestrial rights be conferred on the existing incumbent MVDDS licensees, or are there alternative approaches for expanding terrestrial use opportunities in this band, such as site-based, individually coordinated operations relative to existing MVDDS operations? How should these operations be licensed, what technical data should be collected, and what type of technical limits and coordination requirements should be considered to allow necessary protections and coexistence with incumbent services in the band? Are there use cases or technologies that could be provided in a one-way point-to-multipoint type configuration, subject to higher power limits than MVDDS? To what extent would potential deployments of this type provide substantial benefits to the public? What would be the benefits to consumers and businesses of expanded one-way use, as compared to the benefits of other types or potential expanded terrestrial use cases or architectures?

8. The Commission also seeks comment on the possibility of allowing for two-way, point-to-point fixed links at a standard part 101 higher power limit.²⁶ Allowing this type of use could expand backhaul to support advanced broadband capacity. Should higher power two-way point-to-point type terrestrial rights be conferred on the existing incumbent geographic service area licensees? Or should the Commission consider alternative approaches, such as site-based, individually coordinated operations relative to existing MVDDS operations? The Commission notes that several other similar bands are shared between NGSO FSS and two-way point-to-point

²⁵ See Letter from Daniel C. H. Mah, SES Americom, Inc., W. Ray Rutngamlug, Associate General Counsel, Intelsat US, LLC, to Marlene H. Dortch, Secretary, FCC, GN Docket No. 22-352, at B-1 (filed May 12, 2023) (citing MVDDS 5G Coalition, Comments, RM-11768, Attach. 1, MVDDS 12.2-12.7 GHz Co-Primary Service Coexistence (rec. June 8, 2016) (Coexistence 1) and MVDDS 5G Coalition, Reply, Appx. A, MVDDS 12.2-12.7 GHz Co-Primary Service Coexistence II (June 24, 2016) (Coexistence 2) (collectively, Coexistence Studies)).

²⁶ See, e.g., *Expanding Flexible Use of the 12.2-12.7 GHz Band*, WT Docket Nos. 20-443 et al., Notice of Proposed Rulemaking, 36 FCC Rcd 606, 629, para. 60 (2021) (12.2 Notice) (citing *Wireless Telecommunications Bureau Seeks Comment on Petitions of Seven Licensees for Waiver of Multichannel Video Distribution and Data Service Technical Rules*, WT Docket No. 15-218, Public Notice, 30 FCC Rcd 9953 (WTB 2015) (petitioners seek waivers of 47 CFR 101.113 note 11, 101.147(p), 101.1407, and 101.1411(a), to use the 12 GHz band for two-way, point-to-point operation at an EIRP up to 55 dBm)).

operations, based on successful coordination of later-in-time operations.²⁷ Given the nature of highly directional point-to-point two-way operations, the Commission asks whether terrestrial operations may be able to successfully co-exist with new and incumbent DBS and NGSO FSS operations? What would the interference protection status of NGSO FSS ESIMs be vis-à-vis these newly proposed services? Would it be manageable if rights were conferred on a first-in-time basis, since under the current authorization NGSO FSS ESIMs are not afforded protection? As a baseline, would consideration of the current technical standards in similar part 101 bands (11 GHz, 13 GHz) provide a basis for technical rules for two-way point-to-point operations in the 12.2 GHz band? If not, to what degree should they be limited or modified? How should two-way, point-to-point operations be licensed, what technical data should be collected, and what type of technical limits and coordination requirements should be considered to allow necessary protections and coexistence with incumbent services in the band? In particular, how should the burden of protecting new or modified DBS subscribers be assigned after a point-to-point link is successfully coordinated with existing DBS customers of record? How would new or modified NGSO FSS earth stations be protected? Additionally, should the Commission consider the possibility of relocating point-to-point operations from the 12.7-13.25 GHz band (the 12.7 GHz band) to the 12.2 GHz band and, if so, how would this best be accomplished? Alternatively, would allowing expanded opportunities for disaggregation and partitioning promote more intensive use of the spectrum? Currently, the MVDDS rules do not allow disaggregation and limit partitioning to counties.²⁸ Should the Commission revisit those rules to allow the option for 12.7 GHz point-to-point operators to lease spectrum larger in the 12.2 GHz band through partitioning and disaggregation?

²⁷ See, e.g., *Amendment of Parts 2 and 25 of the Commission's Rules to Enable GSO Fixed-Satellite Service (Space-to-Earth) Operations in the 17.3-17.8 GHz Band, to Modernize Certain Rules Applicable to 17/24 GHz BSS Space Stations, and to Establish Off-Axis Uplink Power Limits for Extended Ka-Band FSS Operations*, IB Docket Nos. 20-330 and 22-273, Report and Order and Notice of Proposed Rulemaking, FCC 22-63, 2022 WL 3138555 (Aug. 3, 2022).

²⁸ 47 CFR 101.1415.

9. Further, the Commission also seeks comment on the possibility of allowing two-way point-to-multipoint links. Specifically, the Commission seeks comment on the following issues related to an updated two-way point-to-multipoint fixed link service in the 12.2 GHz band. What power limit would be appropriate to allow for better expanded terrestrial use of this band while still protecting incumbent licensees? Should such expanded terrestrial rights be conferred on the existing incumbent MVDDS licensees, or are there alternative approaches for expanding terrestrial use opportunities in this band, such as site-based, individually coordinated operations relative to existing MVDDS operations? How should these operations be licensed, what technical data should be collected, and what type of technical limits and coordination requirements should be considered to allow necessary protections and coexistence with incumbent services in the band? Is there any adjustment necessary for the interference protection criteria of power flux density (PFD) and equivalent power flux density (EPFD)? If so, how should these metrics be calculated for an updated two-way point-to-point or point-to-multipoint fixed link service? Given that EPFD was originally conceived to promote sharing between NGSO FSS and GSO BSS and FSS systems,²⁹ is this the right metric for the present application? Is it appropriate to reconsider the underlying free space propagation assumption regarding the interference protection criteria? The Commission has previously determined that a combination of different propagation models is most appropriate for the determination of sharing metrics between fixed microwave links and unlicensed devices.³⁰ Given the terrestrial nature of both interferer and victim, is a combination of different propagation models more suitable than relying only on a free space model? If so, what are the appropriate combinations of propagation models

²⁹ See *Amendment of Parts 2 and 25 of the Commission's Rules to Permit Operation of NGSO FSS Systems Co-Frequency with GSO and Terrestrial Systems in the Ku-Band Frequency Range, Amendment of the Commission's Rules to Authorize Subsidiary Terrestrial Use of the 12.2-12.7 GHz Band by Direct Broadcast Satellite Licensees and Their Affiliates; and Applications of Broadwave USA, PDC Broadband Corporation, and Satellite Receivers, Ltd. to Provide A Fixed Service in the 12.2-12.7 GHz Band*, ET Docket No. 98-206, First Report and Order and Further Notice of Proposed Rulemaking, 16 FCC Rcd 4096, 4106, paras. 12-14 (2000).

³⁰ See *Unlicensed Use of the 6 GHz Band*, ET Docket No. 18-295, Report and Order and Further Notice of Proposed Rulemaking, 35 FCC Rcd 3852, 3874., Para. 63 (2020), *aff'd in part, remanded in part sub nom. AT&T Services, Inc. v. FCC*, 21 F.4th 841 (D.C. Cir. 2021).

and their respective ranges of applicability? Please provide the necessary justification for use of the models. How is the definition of PFD and EPFD changed for the path-loss model other than the free space?³¹ Are there any other impacts to consider as a result of using models other than the free space propagation model? For example, should the Commission also consider changing the maximum equivalent isotropic radiated power (EIRP) allowed? If so, what is the maximum EIRP? Please provide the necessary justification for use of higher EIRP. Should there be multiple categories for the maximum EIRP? For example, should there be a maximum EIRP for the urban environment and another maximum EIRP for the rural environment? Are there use cases or technologies that could be provided in a two-way point-to-multipoint type configuration, subject to higher power limits than MVDDS? To what extent would potential deployments of this type provide substantial benefits to the public? What would be the benefits to consumers and businesses of expanded two-way use, as compared to the benefits of other types or potential expanded terrestrial use cases or architectures?

10. Alternatively, adding indoor-only underlay use of the band could allow for greater control and access assurances that could help stimulate Internet of Things (IoT), private Long Term Evolution (LTE) or New Radio (NR) market in the band.³² If the Commission was to consider such expanded terrestrial authorization in the band, should that authorization be awarded to the existing incumbent MVDDS licensees, or should this type of authorization be available to businessowners/landowners for the operation of private networks/IoT such as on physical campuses or industrial complexes? If such authorizations were conveyed to businessowners/landowners, how would they intersect with the authorizations held by existing MVDDS incumbent licensees, and should the MVDDS authorizations also be expanded? If such

³¹ PFD for general path-loss can be defined as $PFD = EIRP - PL + 10 * \log_{10}(4 * \pi) - 20 * \log_{10}(\lambda)$. Also EPFD can be expressed in terms of PFD as $EPFD = PFD * G_e(\theta_e, \varphi_e) / G_{e,max}$, where PFD is defined in the previous sentence.

³² See *12.2 Notice*, 36 FCC Rcd at 622, para. 39 (stating that in an underlay approach any additional terrestrial operations likely would need to be authorized at low power and would need to operate on an opportunistic basis, not causing harmful interference to—nor seeking protection from harmful interference by—the incumbent primary services in the band.).

rights for a different type of terrestrial use were afforded to businessowners/landowners, should they be licensed-by-rule? What type of coordination mechanism might allow for such use, e.g. standard coordination notifying incumbent services within a specific distance of the proposed facilities of the planned technical parameters of the proposed operation? What interference thresholds or limitations would such indoor-only unlicensed operations need to observe to adequately protect MVDDS, DBS, and NGSO FSS operations from harmful interference? Should rights be conveyed to terrestrial licensees on a first-in-time basis, similar to those that currently exist in the Commission's rules, or with proposed modifications, in order to provide certainty for licensees that invest in and operate these systems?

11. Unlicensed Use. The Commission seeks comment on whether, and, if so, how, to permit unlicensed use of the 12.2 GHz band, a step that multiple parties advocate.³³ The unlicensed advocates claim that a low-power, indoor-only unlicensed underlay in the 12.2 GHz band would create additional capacity for IoT uses.³⁴ Part 15 sets out the regulations under which an intentional, unintentional, or incidental radiator may be operated without an individual license.³⁵ Under the rules for unlicensed intentional radiators,³⁶ the 10.6-12.7 GHz band is designated as "restricted."³⁷ Unless expressly permitted by rule or waiver, unlicensed devices are not allowed to intentionally radiate energy into a restricted band, in order to protect sensitive radio services from harmful interference.³⁸ The Commission seeks comment on the benefits and

³³ Boeing Reply at 10; NCTA Reply at 2; Letter from Chip Pickering, CEO, Incompas, and Joe Lockhart, Partner, Rational 360, to Acting Chairwoman Rosenworcel and Commissioners, FCC, Docket No. 20-443, Attach. A, Ensuring U.S. Leadership in 5G, at 4 (filed Apr. 28, 2021); Dynamic Spectrum Alliance Comment at 6-7; Federated Wireless Comment at 3.

³⁴ Comments of Public Interest Organizations (New America's Open Technology Institute, et al.), at 2, 17.

³⁵ See 47 CFR 15.1(a).

³⁶ See 47 CFR part 15, subpart C.

³⁷ 47 CFR 15.205(a) (designates bands of operation in which only spurious emissions are permitted under part 15).

³⁸ See, e.g., *Amendment of Part 15 of the Commission's Rules to Establish Regulations for Tank Level Probing Radars in the Frequency Band 77-81 GHz*; *Amendment of Part 15 of the Commission's Rules To Establish Regulations for Level Probing Radars and Tank Level Probing Radars in the Frequency Bands 5.925 7.250 GHz, 24.05 29.00 GHz and 75 85 GHz*, ET Docket No. 10-23, Report and Order, (FCC 14-2) 29 FCC Rcd 761, 773 para. 26, n.73 (2014) (citing Revision of the Rules Regarding Operation of Radio Frequency Devices Without an Individual License, First Report and Order, GEN Docket 87-389, 4 FCC Rcd 3493 (1989), 47 CFR 15.205(a)).

costs of removing the 12.2 GHz band from the list of restricted bands. What type of applications (e.g. IoT, local networking, etc.) and from what types of devices (e.g. indoor access points, mobile client devices, etc.) would unlicensed operations most benefit in the 12.2 GHz band?

12. The Commission invites commenters to discuss whether unlicensed use may be permitted within the 12.2-12.7 GHz band under provisions that could be implemented under the Commission's part 15 rules. Those rules require that unlicensed devices protect the licensed incumbent services³⁹ which, in this case, includes DBS, NGSO FSS, and MVDDS. The Commission notes that it has rules for unlicensed low power indoor devices in the 6 GHz band that could serve as a model for unlicensed use in this band. Under those rules, the Commission found that low-power indoor devices could take advantage of building entry loss to protect incumbent fixed service users.⁴⁰ Would these rules provide an appropriate model for indoor devices in the 12.2 GHz band?⁴¹ Under the 6 GHz low power indoor rules, unlicensed access points may operate at 5 dBm/MHz EIRP while client devices are limited to -1 dBm/MHz. The unlicensed access points must be supplied power from a wired connection, may not be weatherized, must use an integrated antenna, and must have a label indicating that use is restricted to indoors. The client devices must operate only under the control of an access point. If the Commission allowed indoor unlicensed use in the 12.2 GHz band, what rules should be

³⁹ 47 CFR 15.5(b).

⁴⁰ See *Unlicensed Use of the 6 GHz Band and Expanding Flexible Use in Mid-Band Spectrum Between 3.7 and 24 GHz*, ET Docket No. 18-295; GN Docket No. 17-183, Report and Order and Further Notice of Proposed Rulemaking, 35 FCC Rcd 3852, 3888, para. 96, *et seq.* (2020), *aff'd in part, remanded in part sub nom. AT&T Services, Inc. v. FCC*, 21 F.4th 841 (D.C. Cir. 2021).

⁴¹ The Commission notes that in advocating for 5G authorization in the 12.2 GHz band, the MVDDS Coalition's first Coexistence study argued that losses as signals in the 12.2-12.7 GHz band travel through one or more building walls generally provide sufficient attenuation to ensure EPFD limits remain below current limits. Coexistence 1 at 27. Where building attenuation alone might prove insufficient, the Coexistence study stated that "careful placement and power control can prevent the maximum EPFD levels from being exceeded outside of the building envelope to ensure protection of DBS receive antennas." Coexistence 1 at 27. Specifically, the Coexistence study asserted that signals from base stations placed inside one interior wall would have 50 dB attenuation resulting from passing through an interior and exterior wall, while mobile units more likely to travel toward building edges would experience 30 dB. Coexistence 1 at 26. Furthermore, the study noted that 5G network operators could manage interference through controlling the transmission location of 5G mobile devices through "geofencing," which involves the use of location information from the device to assign unit geographical boundaries to the permitted area of operation. Coexistence 1 at 26-27. These mitigation techniques would allow the broadband operator to prevent 5G MVDDS mobile devices from venturing into areas that might offer insufficient attenuation to one or more DBS receivers outside of the building exterior." Coexistence 1 at 27.

adopted to mitigate the risk of harmful interference from indoor unlicensed devices to incumbent services? For example, would the same rules that the Commission relies on to keep 6 GHz low-power indoor devices inside be replicated here to provide signal attenuation between indoor unlicensed devices and outdoor DBS, NGSO FSS, and MVDDS receive antennas? Noting that the incumbent services are generally trying to receive a weak signal from a satellite, would the expected building entry loss be adequate to protect those services? What technical limitations such as power levels, bandwidth restrictions, or out-of-band emission limits would be appropriate in conjunction with an indoor-only requirement to protect the incumbent services? Could the Commission permit less restrictive unlicensed use (e.g., higher indoor power levels, outdoor use, etc.) with a label warning to alert consumers that use near a DBS, NGSO FSS, or MVDDS receive site could result in harmful interference to the consumer device? For example, this would allow DBS subscribers to decide about whether to use such a device in their homes knowing there is a potential interference risk. Are there other potential interference mitigation techniques or system design requirements the Commission should consider to protect incumbent services, such as geofencing capability?⁴² The Commission invites commenters to submit engineering analysis or measurement data addressing the potential for such indoor unlicensed devices to cause harmful interference to DBS, NGSO FSS, and MVDDS receivers.

13. Other Technology-based Sharing. In addition, the Commission seeks comment on whether there may be opportunities to take advantage of technological advancements to accommodate expanded terrestrial capabilities in the 12.2 GHz band. For example, could dynamic, database-driven coordination capabilities such as have been implemented in other frequency bands (e.g., 6 GHz unlicensed and 3.5 GHz Citizens Broadband Radio Service) be implemented in the 12.2 GHz band? Would another type of frequency management system allow for a greater opportunity for expanded terrestrial services to develop within the band while

⁴² Coexistence 1 at 26-27.

affording protection to incumbent satellite and terrestrial services? What technical data would need to be collected to support such a system? DBS operators are currently required to maintain data on current subscriber locations; NGSO FSS operators have no similar requirement to track consumer terminal location data, and deployments in the band continue to increase. Would additional technical data need to be collected or shared among the licensees so that an advanced frequency management system could effectively manage shared use and prevent interference exceedance to the different services in the band? What parameters should the Commission put in place to ensure that any obligations for a new managed sharing regime in the band would not be overly cumbersome, particularly to the DBS and NGSO FSS incumbents? The Commission seeks comment on what type of frequency management system might be used to control access to, and manage potential interference in, the 12.2 GHz band. Who should have ownership or oversight of such systems? How should frequency management system or database operators be selected, and what should be the requirements for such roles? Would there be any interest in operating such systems or databases? What type of testing requirements should there be on these types of systems? How might the associated costs be addressed, and who should bear the burden of those costs? For instance, should new terrestrial fixed services bear all the costs, or should part of this cost be shared by the NGSO FSS and DBS incumbents in the band?

14. The Commission specifically seeks comment on the use of Automated Frequency Coordination (AFC) systems, which were adopted for unlicensed outdoor deployments in the 6 GHz band based on several considerations that were specific to that band. Accordingly, the Commission seeks comment on whether similar, or otherwise compelling, considerations would support use of an AFC system in the 12.2 GHz band, and also seeks comment about the extent to which these considerations may also be applicable to other frequency coordination management and database system concepts. Among the most relevant considerations are what types of propagation models are the most appropriate, considering the incumbents in this band, including DBS and NGSO FSS satellite systems? What protection criteria would be required specific to

each service, i.e., DBS, NGSO FSS, and MVDDS? How can modelling of the incumbent services be adequately accomplished, particularly considering the potential complexity of NGSO FSS systems, and their associated Earth stations that track satellites that are in motion? What device location information might be required, and what method would be appropriate to obtain such information? For instance, should the Commission consider requiring automated entry of some or all of the information, or permit manually entered information by a certified installer of the device? How would AFC systems be able to periodically verify frequency availability considering the incumbent DBS and NGSO FSS satellite operators and the lack of information as discussed above? Moreover, is a periodic re-check interval an appropriate method to determine changes in frequency availability information and, if so, what should be the maximum permissible interval for verifying frequency availability? If not, the Commission seeks comment on other alternatives that could identify frequency availability. Should aggregate interference be calculated by an AFC system or is it sufficient to just consider individual devices? How should devices be registered, and what collected information should be required? Should an AFC system be able to give commands to shut down devices when changes in spectrum use occur? What system security concerns would need to be addressed? If this concept were to be considered sufficient, technical information would need to be available to such frequency management systems—specifically the technical information that is not currently sufficiently collected, or collected at all, from DBS and NGSO FSS respectively. If this concept was to be considered at what future date should DBS and NGSO FSS be required to provide the required data? The Commission seeks comment on these possible alternatives.

C. Promoting Digital Equity and Inclusion

15. The Commission, as part of its continuing effort to advance digital equity for all,⁴³

⁴³ Section 1 of the Communications Act of 1934 as amended provides that the FCC “regulat[es] interstate and foreign commerce in communication by wire and radio so as to make [such service] available, so far as possible, to all the people of the United States, without discrimination on the basis of race, color, religion, national origin, or sex.” 47 U.S.C. 151.

including people of color, persons with disabilities, persons who live in rural or Tribal areas, and others who are or have been historically underserved, marginalized, or adversely affected by persistent poverty or inequality, invites comments on any equity-related considerations⁴⁴ and benefits (if any) that may be associated with the proposals and issues discussed herein.

Specifically, the Commission seeks comment on how its proposals may promote or inhibit advances in diversity, equity, inclusion, and accessibility, as well the scope of the Commission's relevant legal authority.

II. INITIAL REGULATORY FLEXIBILITY ANALYSIS

16. As required by the Regulatory Flexibility Act of 1980, as amended (RFA)⁴⁵ the Commission has prepared an Initial Regulatory Flexibility Analysis (IRFA) of the possible significant economic impact on a substantial number of small entities by the policies and rules proposed in the FNPRM. Written public comments are requested on this IRFA. Comments must be identified as responses to the IRFA and must be filed by the deadlines for comments on the FNPRM. The Commission will send a copy of the FNPRM, including this IRFA, to the Chief Counsel for Advocacy of the Small Business Administration (SBA).⁴⁶ In addition, the FNPRM and IRFA (or summaries thereof) will be published in the *Federal Register*.⁴⁷

A. Need for, and Objectives of, the Proposed Rules

17. Although the Commission declines to add a mobile allocation or adopt service rules for expanded terrestrial, high-powered, two-way mobile operations in the 12.2-12.7 GHz

⁴⁴ The term "equity" is used here consistent with Executive Order 13985 as the consistent and systematic fair, just, and impartial treatment of all individuals, including individuals who belong to underserved communities that have been denied such treatment, such as Black, Latino, and Indigenous and Native American persons, Asian Americans and Pacific Islanders and other persons of color; members of religious minorities; lesbian, gay, bisexual, transgender, and queer (LGBTQ+) persons; persons with disabilities; persons who live in rural areas; and persons otherwise adversely affected by persistent poverty or inequality. *See* Exec. Order No. 13985, 86 Fed. Reg. 7009, Executive Order on Advancing Racial Equity and Support for Underserved Communities Through the Federal Government (Jan. 20, 2021).

⁴⁵ *See* 5 U.S.C. 603. The RFA, 5 U.S.C. 601-612, has been amended by the Small Business Regulatory Enforcement Fairness Act of 1996, (SBREFA) Pub. L. 104-121, Title II, 110 Stat. 857 (1996).

⁴⁶ 5 U.S.C. 603(a).

⁴⁷ *Id.*

band (12.2 GHz band) the FNPRM seeks additional comment on other possible fixed terrestrial uses of the band. The FNPRM explores expanded licensed fixed uses as well as unlicensed opportunities in the band. The potential rule changes seek to facilitate more robust terrestrial fixed or unlicensed use while protecting incumbent operations in the bands. The FNPRM pursues the Commission's joint goals of maximizing the use of these 500 MHz of spectrum, while balancing desired speed to the market, efficiency of use, and effectively accommodating incumbent operations in the band.

18. In the United States, the 12.2 GHz band is allocated on a primary basis for non-Federal use for the Broadcasting Satellite Service (BSS) (referred to domestically in the band as Direct Broadcast Satellite (DBS); the Fixed Satellite Service (space-to-Earth) limited to non-geostationary orbit systems (NGSO FSS); and the Fixed Service.⁴⁸ While these three services are co-primary, the NGSO FSS and Fixed Service are allocated on a non-harmful interference basis with respect to BSS.⁴⁹ Currently there are three services authorized and operating in the band: DBS providers operating under the primary BSS allocation, Multi-Channel Video and Data Distribution Service (MVDDS) licensees operating on a non-harmful interference basis to DBS under the co-primary Fixed Service allocation, and NGSO FSS licensees operating on a

⁴⁸ See 47 CFR 2.106, United States Table of Frequency Allocations, non-Federal Table for the band 12.2-12.7 GHz. NGSO FSS (space-to-Earth) operations are authorized pursuant to international footnote 5.487A (revised as 47 CFR 2.106(b)(487)(i), at 88 FR 37318, June 7, 2023, effective July 7, 2023), which provides additional allocations including in Region 2 as follows: "[The 12.2-12.7 GHz is] allocated to the fixed-satellite service (space-to-Earth) on a primary basis, limited to non-geostationary systems and subject to application of the provisions of [ITU Radio Regulations] No. 9.12 for coordination with other non-geostationary-satellite systems in the fixed-satellite service. Non-geostationary-satellite systems in the fixed-satellite service shall not claim protection from geostationary-satellite networks in the broadcasting-satellite service operating in accordance with the Radio Regulations, irrespective of the dates of receipt by the [ITU Radiocommunication] Bureau of the complete coordination or notification information, as appropriate, for the non-geostationary-satellite systems in the fixed-satellite service and of the complete coordination or notification information, as appropriate, for the geostationary-satellite networks, and [ITU Radio Regulations] No. 5.43A does not apply. Non-geostationary-satellite systems in the fixed-satellite service in the [12 GHz band] shall be operated in such a way that any unacceptable interference that may occur during their operation shall be rapidly eliminated."

47 CFR 2.106, footnote 5.487A (revised as 47 CFR 2.106(b)(487)(i), at 88 FR 37318, June 7, 2023, effective July 7, 2023). When an international footnote is applicable without modification to non-Federal operations, the Commission places the footnote on the non-Federal Table. See 47 CFR 2.105(d)(5).

⁴⁹ See 47 CFR 2.106, n.5.490 (International Footnote) (revised as 47 CFR 2.106(b)(490), at 88 FR 37318, June 7, 2023, effective July 7, 2023). In Region 2, in the band 12.2-12.7 GHz, existing and future terrestrial radiocommunication services shall not cause harmful interference to the space services operating in conformity with the broadcasting satellite Plan for Region 2 contained in Appendix 30.

non-harmful interference basis to DBS under the co-primary NGSO FSS allocation. This proceeding is predicated in part on the MVDDS 5G Coalition petition for rulemaking,⁵⁰ however alternative uses for the band were raised by various commenters. Incumbent NGSO and some DBS interests seek to continue to use the band without ceding rights to MVDDS licensees. To facilitate further consideration of the various proposals in the FNPRM the Commission seeks comment on how to weigh public interest considerations associated with allowing, prohibiting and prioritizing uses and on the costs and benefits of allowing new uses of the 12 GHz bands.

19. The Commission's rules currently enable sharing between co-primary NGSO FSS and MVDDS using a combination of technical limitations, information sharing, and first-in-time procedures.⁵¹ While the Commission declines to add a mobile allocation or adopt service rules for expanded terrestrial, high-powered, two-way mobile operations in the 12.2-12.7 GHz band, the Commission remains interested in potential expanded terrestrial use of the band. The Commission therefore seeks comment on additional possible terrestrial uses of the 12.2-12.7 GHz band including one-way, point-to-point or point-to-multipoint fixed links at higher powers than current MVDDS rules; two-way, point-to-point fixed links at standard part 101 power limits; two-way, point-to-multipoint links; indoor only underlay on a licensed by rule basis; unlicensed use; and expanded use through technology-based share using Automated Frequency Coordination (AFC).

20. By modifying the Commission's rules and implementing policies designed to provide for more robust use of the 12 GHz band, the Commission hopes to ensure that this spectrum is efficiently utilized and will foster the development of new and innovative technologies and services, as well as encourage the growth and development of a wide variety of

⁵⁰ MVDDS 5G Coalition Petition. *See also* Petition Public Notice. In its most recent filing, the Coalition's members were reported to be: Cass Cable TV, Inc., DISH Network L.L.C., Go Long Wireless LTD., MDS Operations, Inc., MVD Number 53 Partners, Satellite Receivers, Ltd., SOUTH.COM LLC, Story Communications, LLC, and Vision Broadband, LLC. *See* Letter from MVDDS 5G Coalition, to Marlene H. Dortch, Secretary, FCC, Docket No. RM-11768, at 1 (filed May 28, 2019). The Commission notes that MDS Operations subsequently assigned its remaining 60 MVDDS licenses to RS Access.

⁵¹ *See* 47 CFR 101.113(a) n.11; 101.147(p).

services, ultimately leading to greater benefits to consumers.

B. Legal Basis

21. The proposed action is authorized pursuant to sections 1, 2, 4, 5, 301, 302, 303, 304, 307, 309, 310, and 316 of the Communications Act of 1934, 47 U.S.C. 151, 152, 154, 155, 301, 302a, 303, 304, 307, 309, 310, 316, and § 1.411 of the Commission's rules, 47 CFR 1.411.

C. Description and Estimate of the Number of Small Entities to Which the Proposed Rules Will Apply

22. The RFA directs agencies to provide a description of and, where feasible, an estimate of the number of small entities that may be affected by the proposed rules, if adopted.⁵² The RFA generally defines the term "small entity" as having the same meaning as the terms "small business," "small organization," and "small governmental jurisdiction."⁵³ In addition, the term "small business" has the same meaning as the term "small business concern" under the Small Business Act.⁵⁴ A "small business concern" is one which: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the SBA.⁵⁵

23. Small Businesses, Small Organizations, Small Governmental Jurisdictions. The Commission's actions, over time, may affect small entities that are not easily categorized at present. The Commission therefore describes, at the outset, three broad groups of small entities that could be directly affected herein.⁵⁶ First, while there are industry specific size standards for small businesses that are used in the regulatory flexibility analysis, according to data from the Small Business Administration's (SBA) Office of Advocacy, in general a small business is an

⁵² 5 U.S.C. 603(b)(3).

⁵³ 5 U.S.C. 601(6).

⁵⁴ *Id.* Section 601(3) (incorporating the definition of "small-business concern" in the Small Business Act, 15 U.S.C. 632). Pursuant to 5 U.S.C. 601(3), the statutory definition of a small business applies "unless an agency, after consultation with the Office of Advocacy of the Small Business Administration and after opportunity for public comment, establishes one or more definitions of such term which are appropriate to the activities of the agency and publishes such definition(s) in the *Federal Register*."

⁵⁵ 15 U.S.C. 632.

⁵⁶ 5 U.S.C. 601(3)-(6).

independent business having fewer than 500 employees.⁵⁷ These types of small businesses represent 99.9% of all businesses in the United States, which translates to 32.5 million businesses.⁵⁸

24. Next, the type of small entity described as a “small organization” is generally “any not-for-profit enterprise which is independently owned and operated and is not dominant in its field.”⁵⁹ The Internal Revenue Service (IRS) uses a revenue benchmark of \$50,000 or less to delineate its annual electronic filing requirements for small exempt organizations.⁶⁰ Nationwide, for tax year 2020, there were approximately 447,689 small exempt organizations in the U.S. reporting revenues of \$50,000 or less according to the registration and tax data for exempt organizations available from the IRS.⁶¹

25. Finally, the small entity described as a “small governmental jurisdiction” is defined generally as “governments of cities, counties, towns, townships, villages, school districts, or special districts, with a population of less than fifty thousand.”⁶² U.S. Census Bureau data from the 2017 Census of Governments⁶³ indicate there were 90,075 local governmental

⁵⁷ See SBA, Office of Advocacy, Frequently Asked Questions, “What is a small business?,” <https://cdn.advocacy.sba.gov/wp-content/uploads/2021/11/03093005/Small-Business-FAQ-2021.pdf>. Nov 2021.

⁵⁸ *Id.*

⁵⁹ 5 U.S.C. 601(4).

⁶⁰ The IRS benchmark is similar to the population of less than 50,000 benchmark in 5 U.S.C. 601(5) that is used to define a small governmental jurisdiction. Therefore, the IRS benchmark has been used to estimate the number of small organizations in this small entity description. See Annual Electronic Filing Requirement for Small Exempt Organizations – Form 990-N (e-Postcard), “Who must file,” <https://www.irs.gov/charities-non-profits/annual-electronic-filing-requirement-for-small-exempt-organizations-form-990-n-e-postcard>. The Commission notes that the IRS data does not provide information on whether a small exempt organization is independently owned and operated or dominant in its field.

⁶¹ See Exempt Organizations Business Master File Extract (EO BMF), “CSV Files by Region,” <https://www.irs.gov/charities-non-profits/exempt-organizations-business-master-file-extract-eo-bmf>. The IRS Exempt Organization Business Master File (EO BMF) Extract provides information on all registered tax-exempt/non-profit organizations. The data utilized for purposes of this description was extracted from the IRS EO BMF data for businesses for the tax year 2020 with revenue less than or equal to \$50,000 for Region 1-Northeast Area (58,577), Region 2-Mid-Atlantic and Great Lakes Areas (175,272), and Region 3-Gulf Coast and Pacific Coast Areas (213,840) that includes the continental U.S., Alaska, and Hawaii. This data does not include information for Puerto Rico.

⁶² 5 U.S.C. 601(5).

⁶³ See 13 U.S.C. 161. The Census of Governments survey is conducted every five (5) years compiling data for years ending with “2” and “7”. See also Census of Governments, <https://www.census.gov/programs-surveys/cog/about.html>.

jurisdictions consisting of general purpose governments and special purpose governments in the United States.⁶⁴ Of this number, there were 36,931 general purpose governments (county,⁶⁵ municipal, and town or township⁶⁶) with populations of less than 50,000 and 12,040 special purpose governments—independent school districts⁶⁷ with enrollment populations of less than 50,000.⁶⁸ Accordingly, based on the 2017 U.S. Census of Governments data, the Commission estimates that at least 48,971 entities fall into the category of “small governmental jurisdictions.”⁶⁹

26. Radio Frequency Equipment Manufacturers (RF Manufacturers). There are several analogous industries with an SBA small business size standard that are applicable to RF Manufacturers. These industries are Fixed Microwave Services, Other Communications Equipment Manufacturing, Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing. A description of these industries and the SBA small business size standards are detailed below.

⁶⁴ See U.S. Census Bureau, 2017 Census of Governments – Organization Table 2. Local Governments by Type and State: 2017 [CG1700ORG02], <https://www.census.gov/data/tables/2017/econ/gus/2017-governments.html>. Local governmental jurisdictions are made up of general purpose governments (county, municipal and town or township) and special purpose governments (special districts and independent school districts). See also tbl.2. CG1700ORG02 Table Notes_Local Governments by Type and State_2017.

⁶⁵ See *id.* at tbl.5. County Governments by Population-Size Group and State: 2017 [CG1700ORG05], <https://www.census.gov/data/tables/2017/econ/gus/2017-governments.html>. There were 2,105 county governments with populations less than 50,000. This category does not include subcounty (municipal and township) governments.

⁶⁶ See *id.* at tbl.6. Subcounty General-Purpose Governments by Population-Size Group and State: 2017 [CG1700ORG06], <https://www.census.gov/data/tables/2017/econ/gus/2017-governments.html>. There were 18,729 municipal and 16,097 town and township governments with populations less than 50,000.

⁶⁷ See *id.* at tbl.10. Elementary and Secondary School Systems by Enrollment-Size Group and State: 2017 [CG1700ORG10], <https://www.census.gov/data/tables/2017/econ/gus/2017-governments.html>. There were 12,040 independent school districts with enrollment populations less than 50,000. See also tbl.4. Special-Purpose Local Governments by State Census Years 1942 to 2017 [CG1700ORG04], CG1700ORG04 Table Notes_Special Purpose Local Governments by State_Census Years 1942 to 2017.

⁶⁸ While the special purpose governments category also includes local special district governments, the 2017 Census of Governments data does not provide data aggregated based on population size for the special purpose governments category. Therefore, only data from independent school districts is included in the special purpose governments category.

⁶⁹ This total is derived from the sum of the number of general purpose governments (county, municipal and town or township) with populations of less than 50,000 (36,931) and the number of special purpose governments - independent school districts with enrollment populations of less than 50,000 (12,040), from the 2017 Census of Governments - Organizations tbls.5, 6 & 10.

27. Fixed Microwave Services. Fixed microwave services include common carrier,⁷⁰ private-operational fixed,⁷¹ and broadcast auxiliary radio services.⁷² They also include the Upper Microwave Flexible Use Service (UMFUS),⁷³ Millimeter Wave Service (70/80/90 GHz),⁷⁴ Local Multipoint Distribution Service (LMDS),⁷⁵ the Digital Electronic Message Service (DEMS),⁷⁶ 24 GHz Service,⁷⁷ Multiple Address Systems (MAS),⁷⁸ and Multichannel Video Distribution and Data Service (MVDDS),⁷⁹ where in some bands licensees can choose between common carrier and non-common carrier status.⁸⁰ Wireless Telecommunications Carriers (except Satellite)⁸¹ is the closest industry with an SBA small business size standard applicable to these services. The SBA small size standard for this industry classifies a business as small if it has 1,500 or fewer employees.⁸² U.S. Census Bureau data for 2017 show that there were 2,893 firms that operated in this industry for the entire year.⁸³ Of this number, 2,837 firms employed fewer than 250 employees.⁸⁴ Thus, under the SBA size standard, the Commission estimates that a majority of

⁷⁰ See 47 CFR part 101, subparts C and I.

⁷¹ See *id.* subparts C and H.

⁷² Auxiliary Microwave Service is governed by part 74 of title 47 of the Commission's Rules. See 47 CFR part 74. Available to licensees of broadcast stations and to broadcast and cable network entities, broadcast auxiliary microwave stations are used for relaying broadcast television signals from the studio to the transmitter, or between two points such as a main studio and an auxiliary studio. The service also includes mobile TV pickups, which relay signals from a remote location back to the studio.

⁷³ See 47 CFR part 30.

⁷⁴ See 47 CFR part 101, subpart Q.

⁷⁵ See *id.* subpart L.

⁷⁶ See *id.* subpart G.

⁷⁷ See *id.*

⁷⁸ See *id.* subpart O.

⁷⁹ See *id.* subpart P.

⁸⁰ See 47 CFR 101.533, 101.1017.

⁸¹ See U.S. Census Bureau, *2017 NAICS Definition, "517312 Wireless Telecommunications Carriers (except Satellite),"* <https://www.census.gov/naics/?input=517312&year=2017&details=517312>.

⁸² See 13 CFR 121.201, NAICS Code 517312 (as of 10/1/22, NAICS Code 517112).

⁸³ See U.S. Census Bureau, *2017 Economic Census of the United States, Employment Size of Firms for the U.S.: 2017*, Table ID: EC1700SIZEEMPfirm, NAICS Code 517312, <https://data.census.gov/cedsci/table?y=2017&n=517312&tid=ECNSIZE2017.EC1700SIZEEMPfirm&hidePrevious=false>.

⁸⁴ *Id.* The available U.S. Census Bureau data does not provide a more precise estimate of the number of firms that meet the SBA size standard.

fixed microwave service licensees can be considered small.

28. The Commission does not generally track subsequent business size unless, in the context of assignments or transfers, unjust enrichment issues are implicated. Additionally, since the Commission does not collect data on the number of employees for licensees providing these services, at this time the Commission is not able to estimate the number of licensees with active licenses that would qualify as small under the SBA's small business size standard.

29. Wired Telecommunications Carriers. The U.S. Census Bureau defines this industry as establishments primarily engaged in operating and/or providing access to transmission facilities and infrastructure that they own and/or lease for the transmission of voice, data, text, sound, and video using wired communications networks.⁸⁵ Transmission facilities may be based on a single technology or a combination of technologies. Establishments in this industry use the wired telecommunications network facilities that they operate to provide a variety of services, such as wired telephony services, including Voice over Internet Protocol (VoIP) services, wired (cable) audio and video programming distribution, and wired broadband Internet services.⁸⁶ By exception, establishments providing satellite television distribution services using facilities and infrastructure that they operate are included in this industry.⁸⁷ Wired Telecommunications Carriers are also referred to as wireline carriers or fixed local service providers.⁸⁸

30. The SBA small business size standard for Wired Telecommunications Carriers classifies firms having 1,500 or fewer employees as small.⁸⁹ U.S. Census Bureau data for 2017

⁸⁵ See U.S. Census Bureau, *2017 NAICS Definition, "517311 Wired Telecommunications Carriers,"* <https://www.census.gov/naics/?input=517311&year=2017&details=517311>.

⁸⁶ *Id.*

⁸⁷ *Id.*

⁸⁸ Fixed Local Service Providers include the following types of providers: Incumbent Local Exchange Carriers (ILECs), Competitive Access Providers (CAPs) and Competitive Local Exchange Carriers (CLECs), Cable/Coax CLECs, Interconnected VOIP Providers, Non-Interconnected VOIP Providers, Shared-Tenant Service Providers, Audio Bridge Service Providers, and Other Local Service Providers. Local Resellers fall into another U.S. Census Bureau industry group and therefore data for these providers is not included in this industry.

⁸⁹ See 13 CFR 121.201, NAICS Code 517311 (as of 10/1/22, NAICS Code 517111).

show that there were 3,054 firms that operated in this industry for the entire year.⁹⁰ Of this number, 2,964 firms operated with fewer than 250 employees.⁹¹ Additionally, based on Commission data in the 2022 Universal Service Monitoring Report, as of December 31, 2021, there were 4,590 providers that reported they were engaged in the provision of fixed local services.⁹² Of these providers, the Commission estimates that 4,146 providers have 1,500 or fewer employees.⁹³ Consequently, using the SBA's small business size standard, most of these providers can be considered small entities.

31. Wireless Telecommunications Carriers (except Satellite). This industry comprises establishments engaged in operating and maintaining switching and transmission facilities to provide communications via the airwaves.⁹⁴ Establishments in this industry have spectrum licenses and provide services using that spectrum, such as cellular services, paging services, wireless Internet access, and wireless video services.⁹⁵ The SBA size standard for this industry classifies a business as small if it has 1,500 or fewer employees.⁹⁶ U.S. Census Bureau data for 2017 show that there were 2,893 firms in this industry that operated for the entire year.⁹⁷ Of that number, 2,837 firms employed fewer than 250 employees.⁹⁸ Additionally, based on

⁹⁰ See U.S. Census Bureau, *2017 Economic Census of the United States, Selected Sectors: Employment Size of Firms for the U.S.: 2017*, Table ID: EC1700SIZEEMPfirm, NAICS Code 517311, <https://data.census.gov/cedsci/table?y=2017&n=517311&tid=ECNSIZE2017.EC1700SIZEEMPfirm&hidePreview=false>.

⁹¹ *Id.* The available U.S. Census Bureau data does not provide a more precise estimate of the number of firms that meet the SBA size standard.

⁹² Federal-State Joint Board on Universal Service, Universal Service Monitoring Report at 26, Table 1.12 (2022), <https://docs.fcc.gov/public/attachments/DOC-391070A1.pdf>. <https://docs.fcc.gov/public/attachments/DOC-379181A1.pdf>

⁹³ *Id.*

⁹⁴ See U.S. Census Bureau, *2017 NAICS Definition*, "517312 Wireless Telecommunications Carriers (except Satellite)," <https://www.census.gov/naics/?input=517312&year=2017&details=517312>.

⁹⁵ *Id.*

⁹⁶ See 13 CFR 121.201, NAICS Code 517312 (as of 10/1/22, NAICS Code 517112).

⁹⁷ See U.S. Census Bureau, *2017 Economic Census of the United States, Employment Size of Firms for the U.S.: 2017*, Table ID: EC1700SIZEEMPfirm, NAICS Code 517312, <https://data.census.gov/cedsci/table?y=2017&n=517312&tid=ECNSIZE2017.EC1700SIZEEMPfirm&hidePreview=false>.

⁹⁸ *Id.* The available U.S. Census Bureau data does not provide a more precise estimate of the number of firms that meet the SBA size standard.

Commission data in the 2022 Universal Service Monitoring Report, as of December 31, 2021, there were 594 providers that reported they were engaged in the provision of wireless services.⁹⁹ Of these providers, the Commission estimates that 511 providers have 1,500 or fewer employees.¹⁰⁰ Consequently, using the SBA's small business size standard, most of these providers can be considered small entities.

32. Satellite Telecommunications. This industry comprises firms "primarily engaged in providing telecommunications services to other establishments in the telecommunications and broadcasting industries by forwarding and receiving communications signals via a system of satellites or reselling satellite telecommunications."¹⁰¹ Satellite telecommunications service providers include satellite and earth station operators. The SBA small business size standard for this industry classifies a business with \$38.5 million or less in annual receipts as small.¹⁰² U.S. Census Bureau data for 2017 show that 275 firms in this industry operated for the entire year.¹⁰³ Of this number, 242 firms had revenue of less than \$25 million.¹⁰⁴ Additionally, based on Commission data in the 2021 Universal Service Monitoring Report, as of December 31, 2020, there were 71 providers that reported they were engaged in the provision of satellite telecommunications services.¹⁰⁵ Of these providers, the Commission estimates that

⁹⁹ Federal-State Joint Board on Universal Service, Universal Service Monitoring Report at 26, Table 1.12 (2022), <https://docs.fcc.gov/public/attachments/DOC-391070A1.pdf>.

¹⁰⁰ *Id.*

¹⁰¹ See U.S. Census Bureau, 2017 NAICS Definition, "517410 Satellite Telecommunications," <https://www.census.gov/naics/?input=517410&year=2017&details=517410>.

¹⁰² See 13 CFR 121.201, NAICS Code 517410.

¹⁰³ See U.S. Census Bureau, 2017 Economic Census of the United States, Selected Sectors: Sales, Value of Shipments, or Revenue Size of Firms for the U.S.: 2017, Table ID: EC1700SIZEREVFIRM, NAICS Code 517410, <https://data.census.gov/cedsci/table?y=2017&n=517410&tid=ECNSIZE2017.EC1700SIZEREVFIRM&hidePreview=false>.

¹⁰⁴ *Id.* The available U.S. Census Bureau data does not provide a more precise estimate of the number of firms that meet the SBA size standard. The Commission also notes that according to the U.S. Census Bureau glossary, the terms receipts and revenues are used interchangeably, see https://www.census.gov/glossary/#term_ReceiptsRevenueServices.

¹⁰⁵ Federal-State Joint Board on Universal Service, Universal Service Monitoring Report at 26, Table 1.12 (2021), <https://docs.fcc.gov/public/attachments/DOC-379181A1.pdf>.

approximately 48 providers have 1,500 or fewer employees.¹⁰⁶ Consequently, using the SBA’s small business size standard, a little more than half of these providers can be considered small entities.

33. All Other Telecommunications. This industry is comprised of establishments primarily engaged in providing specialized telecommunications services, such as satellite tracking, communications telemetry, and radar station operation.¹⁰⁷ This industry also includes establishments primarily engaged in providing satellite terminal stations and associated facilities connected with one or more terrestrial systems and capable of transmitting telecommunications to, and receiving telecommunications from, satellite systems.¹⁰⁸ Providers of Internet services (e.g. dial-up ISPs) or Voice over Internet Protocol (VoIP) services, via client-supplied telecommunications connections are also included in this industry.¹⁰⁹ The SBA small business size standard for this industry classifies firms with annual receipts of \$35 million or less as small.¹¹⁰ U.S. Census Bureau data for 2017 show that there were 1,079 firms in this industry that operated for the entire year.¹¹¹ Of those firms, 1,039 had revenue of less than \$25 million.¹¹² Based on this data, the Commission estimates that the majority of “All Other Telecommunications” firms can be considered small.

34. Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing. This industry comprises establishments primarily engaged in manufacturing

¹⁰⁶ *Id.*

¹⁰⁷ See U.S. Census Bureau, *2017 NAICS Definition*, “517919 All Other Telecommunications,” <https://www.census.gov/naics/?input=517919&year=2017&details=517919>.

¹⁰⁸ *Id.*

¹⁰⁹ *Id.*

¹¹⁰ See 13 CFR 121.201, NAICS Code 517919 (as of 10/1/22, NAICS Code 517810).

¹¹¹ See U.S. Census Bureau, *2017 Economic Census of the United States, Selected Sectors: Sales, Value of Shipments, or Revenue Size of Firms for the U.S.: 2017*, Table ID: EC1700SIZEREVFIRM, NAICS Code 517919, <https://data.census.gov/cedsci/table?y=2017&n=517919&tid=ECNSIZE2017.EC1700SIZEREVFIRM&hidePrevious=false>.

¹¹² *Id.* The available U.S. Census Bureau data does not provide a more precise estimate of the number of firms that meet the SBA size standard. The Commission also notes that according to the U.S. Census Bureau glossary, the terms receipts and revenues are used interchangeably, *see* https://www.census.gov/glossary/#term_ReceiptsRevenueServices.

radio and television broadcast and wireless communications equipment.¹¹³ Examples of products made by these establishments are: transmitting and receiving antennas, cable television equipment, GPS equipment, pagers, cellular phones, mobile communications equipment, and radio and television studio and broadcasting equipment.¹¹⁴ The SBA small business size standard for this industry classifies businesses having 1,250 employees or less as small.¹¹⁵ U.S. Census Bureau data for 2017 show that there were 656 firms in this industry that operated for the entire year.¹¹⁶ Of this number, 624 firms had fewer than 250 employees.¹¹⁷ Thus, under the SBA size standard, the majority of firms in this industry can be considered small.

D. Description of Projected Reporting, Recordkeeping, and Other Compliance Requirements for Small Entities

35. The Commission expects the various proposals seeking to change rules to permit expanded fixed use of the 12.2 GHz band considered in the FNPRM may impose new or additional reporting or recordkeeping and/or other compliance obligations on small entities, as well as on other licensees and applicants if adopted. In particular, potential rule changes involving licensing, registration, and coordination could increase recordkeeping, reporting, or other operational obligations for small entities and for other licensees and applicants. There may also be new compliance obligations created by required equipment upgrades. As a result of these potential additional obligations, small entities may need to hire outside consulting or other professional services for compliance purposes and therefore, the Commission has requested cost-benefit analyses in the FNPRM. The Commission expects to make a determination as to whether

¹¹³ See U.S. Census Bureau, *2017 NAICS Definition*, “334220 Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing,”

<https://www.census.gov/naics/?input=334220&year=2017&details=334220>.

¹¹⁴ *Id.*

¹¹⁵ See 13 CFR 121.201, NAICS Code 334220.

¹¹⁶ See U.S. Census Bureau, *2017 Economic Census of the United States, Employment Size of Firms for the U.S.: 2017*, Table ID: EC1700SIZEEMPfirm, NAICS Code 334220, <https://data.census.gov/cedsci/table?y=2017&n=334220&tid=ECNSIZE2017.EC1700SIZEEMPfirm&hidePreview=false>. https://factfinder.census.gov/bkmk/table/1.0/en/ECN/2012_US/31SG2//naics~334220

¹¹⁷ *Id.* The available U.S. Census Bureau data does not provide a more precise estimate of the number of firms that meet the SBA size standard.

small entities will incur additional costs for complying with the rules upon its review of any comments filed.

36. The Commission is also considering adopting rules that will promote shared access to the 12.2 GHz band that may lead to additional compliance requirements. For example, should expanded terrestrial use be authorized in the band, the Commission has requested comment on whether the burden of avoiding or correcting for interference to existing or future DBS subscribers should be revised, or whether new terrestrial operations should be subject to the same requirements for protecting DBS subscribers that currently apply to other services in the band. Another proposed approach for comment aimed at protecting incumbents raised in the FNPRM is whether new terrestrial operations should be required to disclose certain technical data to facilitate coordination, which would impact small entities providing new service within the band.

37. The Commission's assigning of new terrestrial service rights could also result in new or modified compliance obligations. For example, the Commission seeks comment as to whether it should modify existing licenses using the Commission's section 316 authority to conform to new service rules designed to allow increased operational flexibility when considering any new fixed service in the band. The Commission is also considering alternative approaches, such as site-based, individually coordinated operations relative to existing MVDDS operations, or whether to allow expanded opportunities for disaggregation and partitioning to promote more intensive use of the spectrum.

38. Additionally, potential approaches to facilitate sharing in the 12.2 GHz band upon which the Commission seeks comment in the FNPRM—both expanded unlicensed use and technology-based sharing approaches such as Automated Frequency Coordination—could also impact compliance obligations if adopted. For example, the Commission invites small entity and other commenters to discuss whether unlicensed use may be permitted within the 12.2-12.7 GHz band under provisions that could be implemented under the Commission's part 15 rules (47 CFR

part 15). The Commission also seeks comment as to whether the Commission could permit less restrictive unlicensed use (e.g., higher indoor power levels, outdoor use, etc.) with a label warning to alert consumers that use near a DBS, NGSO FSS, or MVDDS receive site could result in harmful interference to the consumer device. Alternatively, the Commission asks for comment as to whether dynamic, database-driven coordination capabilities such as have been implemented in other frequency bands (e.g., 6 GHz unlicensed and 3.5 GHz Citizens Broadband Radio Service) should be implemented in the 12.2 GHz band or if another type of frequency management system would allow for a greater opportunity for expanded terrestrial services to develop within the band.

39. Other potential impacts to compliance obligations center around the maintenance of technical data as a means of supporting such a system. For example, DBS operators are currently required to maintain data on current subscriber locations; NGSO FSS operators have no similar requirement to track consumer terminal location data, and deployments in the band continue to increase. If this system were to be implemented, the Commission seeks comment as to whether additional technical data would need to be collected or shared among the licensees so that an advanced frequency management system could effectively manage shared use and prevent interference exceedance to the different services in the band. In the Commission's discussion of these proposals in the FNPRM, the Commission has requested comments from the parties in the proceeding and requested cost-benefit analyses, which may help the Commission identify and evaluate relevant matters for small entities, including any compliance costs and burdens that may result in the proceeding.

E. Steps Taken to Minimize the Significant Economic Impact on Small Entities, and Significant Alternatives Considered

40. The RFA requires an agency to describe any significant, specifically small business, alternatives for small businesses that it has considered in reaching its proposed approach, which may include the following four alternatives (among others): “(1) the

establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities; (2) the clarification, consolidation, or simplification of compliance and reporting requirements under the rule for such small entities; (3) the use of performance rather than design standards; and (4) an exemption from coverage of the rule, or any part thereof, for such small entities.”¹¹⁸

41. In the FNPRM, the Commission continues to explore how to best protect current usage of the 12.2 GHz band, while simultaneously seeking ways to increase innovation in the band by expanding further terrestrial uses that could benefit millions of people across the country, as well as small and other entities utilizing those services. While doing so, the Commission is also mindful that small and other entities may incur costs should the proposals the Commission makes, and the alternatives upon which the Commission seeks comment in the FNPRM, be adopted. Below, the Commission discusses some specific actions taken and alternatives considered by the Commission in the FNPRM.

42. In the FNPRM, the Commission considers different ways in which to potentially expand licensed use of terrestrial fixed services in the 12.2 GHz band. For example, expansion of licensed use for incumbent MVDDS licensees could include increasing power limits or expanding terrestrial rights for incumbent MVDDS licensees. Incumbent MVDDS licensees that are small entities may benefit from the expansion of licensed use. At present, eight companies (10 legal entities) hold 191 MVDDS licenses: two DISH subsidiaries hold 82 licenses; RS Access, a subsidiary of a Dell investment fund, holds 60 licenses; two Go Long Wireless entities hold a total of 25 licenses; and five smaller companies hold a total of 24 licenses.¹¹⁹

43. Additionally, in the FNPRM among other things, the Commission considers what

¹¹⁸ 5 U.S.C. 603(c)(1)-(4).

¹¹⁹ The remaining 23 licenses automatically terminated for failure to meet the buildout requirement. *See Requests of Three Licensees of 22 Licenses in the Multichannel Video and Data Distribution Service for Extension of Time to Meet the Final Buildout Requirement for Providing Substantial Service under § 101.1413 of the Commission's Rules, Applications of Three Licensees for Renewal of 22 Licenses in the Multichannel Video and Data Distribution Service*, Order, 33 FCC Rcd 10757 (WTB BD 2018), *recons. pending*. *See also* Blumenthal DTV LLC, Call Sign WQAR709 (Terminated July 26, 2014).

types of technical data reporting requirements should be considered. More specifically, different technical data reporting requirements or timetables that take into account their limited resources; simplification or consolidation of reporting requirements for small entities; or an exemption from any reporting requirements considered as potential steps the Commission could take to the benefit of small entities. The Commission also considers the expansion of unlicensed use of the band, as a means of potentially creating additional capacity for Internet of Things (IoT) use,¹²⁰ or alternatively, other types of applications. As a means of accommodating this expansion, the Commission considers whether its rules for unlicensed low power indoor devices in the 6 GHz band could serve as a model for unlicensed use in the 12.2 GHz band. The use of existing rules as a model could make the compliance obligations the Commission adopts for the 12.2 GHz band easier to meet for those small entities already complying with similar requirements in the 6 GHz band. In the FNPRM the Commission seeks comment on this matter.

44. Lastly, the Commission considers whether there may be opportunities to take advantage of technological advancements to accommodate expanded terrestrial capabilities in the 12.2 GHz band. For example, services providing potentially dynamic, database-driven coordination capabilities, such as those that have been implemented in other frequency bands (e.g., 6 GHz unlicensed and 3.5 GHz Citizens Broadband Radio Service) could be implemented in the 12.2 GHz band. Alternatively, the Commission considers whether perhaps another type of frequency management system would allow for a greater opportunity for expanded terrestrial services to develop within the band while affording protection to incumbent satellite and terrestrial services. The type of frequency management system adopted could make compliance easier to meet for small entities providing those services. Accordingly, in the FNPRM the Commission seeks additional comment on this issue.

45. The Commission expects to more fully consider the economic impact and

¹²⁰ Comments of Public Interest Organizations (New America's Open Technology Institute, et al.), at 2, 17.

alternatives for small entities following the review of comments, including cost-benefit analyses, filed in response to the FNPRM. The Commission's evaluation of this information will shape the final alternatives it considers to minimize any significant economic impact that may occur on small entities, the final conclusions it reaches, and any final rules it promulgates in this proceeding.

F. Federal Rules that May Duplicate, Overlap, or Conflict with the Proposed Rules

46. None.

III. ORDERING CLAUSES

47. IT IS ORDERED that, pursuant to sections 1, 2, 4, 5, 301, 302, 303, 304, 307, 309, 310, and 316 of the Communications Act of 1934, 47 U.S.C. 151, 152, 154, 155, 301, 302a, 303, 304, 307, 309, 310, 316, and § 1.411 of the Commission's rules, 47 CFR 1.411, the Report and Order and Further Notice of Proposed Rulemaking and Notice of Proposed Rulemaking and Order in the captioned dockets IS ADOPTED.

48. The inquiry in Expanding Flexible Use in Mid-Band Spectrum Between 3.7-24 GHz, GN Docket No. 17-183, is TERMINATED as to the mid-band spectrum between 12.2 GHz and 13.25 GHz.

49. IT IS FURTHER ORDERED that, pursuant to applicable procedures set forth in §§ 1.415 and 1.419 of the Commission's rules, 47 CFR 1.415, 1.419, interested parties may file comments on the FNPRM in WT Docket No. 20-443 and the Notice of Proposed Rulemaking in GN Docket No. 22-352 on or before the number of days shown on the first page of this document after publication in the *Federal Register*, and reply comment on or before the number of days shown on the first page of this document after publication in the *Federal Register*.

50. IT IS FURTHER ORDERED that the Commission's Office of the Secretary, Reference Information Center, SHALL SEND a copy of the Report and Order and Further Notice of Proposed Rulemaking and Notice of Proposed Rulemaking and Order, including the

associated Initial Regulatory Flexibility Analyses, to the Chief Counsel for Advocacy of the Small Business Administration.

Federal Communications Commission.

Marlene Dortch,

Secretary,

Office of the Secretary.

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